

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

CONFLUENT SURGICAL, INC., INTEGRA)	
LIFESCIENCES CORPORATION, AND)	
INTEGRA LIFESCIENCES SALES LLC,)	
)	
Plaintiffs,)	
)	
v.)	C.A. No. 17-688 (LPS) (CJB)
)	
HYPERBRANCH MEDICAL)	
TECHNOLOGY, INC.,)	
)	
Defendant.)	
)	

**HYPERBRANCH MEDICAL TECHNOLOGY, INC.'S
OPENING CLAIM CONSTRUCTION BRIEF**

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Table of Contents

	Page
I. INTRODUCTION	1
II. LEGAL STANDARDS	1
A. Claim Construction	1
B. Indefiniteness	2
III. ARGUMENT	2
A. “vent lumen”	2
B. “inner shaft defines/defining . . .” phrases	6
C. “radially extending slot(s)” / “slot(s)”	10
D. “elongated” body phrases	16
E. Phrases directed to the relationship and connection between the connector/manifold element and the (elongated) body element	18
F. “a source of pressurized air” / “a source of pressurized fluid”	21
G. “cylindrical” phrases	22
H. “an outer diameter of the insert is uniform along an entire length of the insert” / “outer diameter of the insert is uniform”	23
I. “insert including a substantially cylindrical member” / “substantially cylindrical member”	24
J. “annular recess”	26
K. “inner shaft”	27
L. “outer sleeve”	28
M. Phrases from the claim preambles	29
IV. CONCLUSION	30

Table of Authorities

	Page(s)
Cases	
<i>Andersen Corp. v. Fiber Composites, LLC</i> , 474 F.3d 1361 (Fed. Cir. 2007).....	14, 23
<i>B. Braun Melsungen AG v. Becton, Dickinson & Co.</i> , No. 1:16-cv-411-RGA, 2017 WL 3396464 (D. Del. Aug. 7, 2017).....	21
<i>Bicon, Inc. v. Straumann Co.</i> , 441 F.3d 945 (Fed. Cir. 2006).....	5, 28
<i>C.R. Bard, Inc. v. U.S. Surgical Corp.</i> , 388 F.3d 858 (Fed. Cir. 2004).....	17
<i>Catalina Mktg. Int’l, Inc. v. Coolsavings.com, Inc.</i> , 289 F.3d 801 (Fed. Cir. 2002).....	29, 30
<i>ePlus, Inc. v. Lawson Software, Inc.</i> , 700 F.3d 509 (Fed. Cir. 2012).....	2
<i>Gen. Am. Transp. Corp. v. Cryo-Trans, Inc.</i> , 93 F.3d 766 (Fed. Cir. 1996).....	6, 12, 18
<i>Interval Lic. LLC v. AOL, Inc.</i> , 766 F.3d 1364 (Fed. Cir. 2014).....	25
<i>Markman v. Westview Instruments, Inc.</i> , 517 U.S. 370 (1996).....	1
<i>MBO Labs., Inc. v. Becton, Dickinson & Co.</i> , 474 F.3d 1323 (Fed. Cir. 2007).....	10
<i>Microsoft Corp. v. Multi-Tech Sys., Inc.</i> , 357 F.3d 1340 (Fed. Cir. 2004).....	2
<i>N. Am. Container, Inc. v. Plastipak Packaging, Inc.</i> , 415 F.3d 1335 (Fed. Cir. 2005).....	9, 10
<i>Nautilus, Inc. v. Biosig Instruments, Inc.</i> , 134 S. Ct. 2120 (2014).....	1, 2, 20, 25
<i>Phillips v. AWH Corp.</i> , 415 F.3d 1303 (Fed. Cir. 2005).....	2

Table of Authorities
(continued)

	Page(s)
<i>Sonix Tech. Co. v. Publ'ns Int'l, Ltd.</i> , 844 F.3d 1370 (Fed. Cir. 2017).....	25
<i>Southwall Techs., Inc. v. Cardinal IG Co.</i> , 54 F.3d 1570 (Fed. Cir. 1995).....	2, 5
<i>Trading Techs. Int'l, Inc. v. eSpeed, Inc.</i> , 595 F.3d 1340 (Fed. Cir. 2010).....	14
 Statutes	
35 U.S.C. § 112.....	2

ABBREVIATIONS

Term	Full Reference
'478 patent	U.S. Patent No. 9,517,478
'453 patent	U.S. Patent No. 8,210,453
'021 patent	U.S. Patent No. 8,876,021
'483 patent	U.S. Patent No. 8,033,483
'468 patent	U.S. Patent No. 8,616,468
'946 patent	U.S. Patent No. 9,101,946
'290 patent	U.S. Patent No. 9,700,290
asserted patents	U.S. Patent No. 9,517,478 U.S. Patent No. 8,210,453 U.S. Patent No. 8,876,021 U.S. Patent No. 8,033,483 U.S. Patent No. 8,616,468 U.S. Patent No. 9,101,946 U.S. Patent No. 9,700,290
Confluent	Confluent Surgical, Inc.
HyperBranch	HyperBranch Medical Technology, Inc.
Integra	Integra LifeSciences Corp. and Integra LifeSciences Sales LLC
Plaintiffs	Confluent Surgical, Inc., Integra LifeSciences Corp., and Integra LifeSciences Sales LLC

ASSERTED CLAIMS**'478 patent – claims 1, 2, 3, and 5-9**

1. A spray assembly for dispensing a mixture, the spray assembly comprising:
 - a connector portion configured for operable engagement with a first source of component, a second source of component, and a source of pressurized air;
 - an elongated portion extending distally from the connector portion, the elongated portion including a first lumen configured for fluid communication with a first source of component, a second lumen configured for fluid communication with a second source of component, and a third lumen configured for fluid communication with a source of pressurized air;
 - a tip assembly operably connected to the elongated portion, the tip assembly defining an opening and a mixing chamber between a distal end of the elongated portion and the opening of the tip assembly, wherein each of the first lumen, the second lumen, and the third lumen are in fluid communication with the mixing chamber; and
 - an insert member received in the mixing chamber, a distal end of the insert member defining an annular recess and at least one radially extending slot, the annular recess and the at least one radially extending slot operating to mix first and second components prior to the combination exiting the opening in the tip assembly.
2. The spray assembly of claim 1, further including a first and a second source of component.
3. The spray assembly of claim 1, wherein the insert member defines a pair of slots.
5. The spray assembly of claim 1, wherein the elongated portion includes an inner shaft and an outer sleeve.
6. A spray assembly for dispensing a mixture, the spray assembly comprising:
 - a body defining a first lumen configured for fluid communication with a first source of component, a second lumen configured for fluid communication with a second source of component, and a third lumen configured for fluid communication with a source of pressurized air;
 - a tip assembly disposed about a distal end of the body, the tip assembly defining an opening and a mixing chamber between the distal end of the body and the opening of the tip assembly, wherein each of the first lumen, the second lumen, and the third lumen are in fluid communication with the mixing chamber; and
 - an insert member received in the mixing chamber adjacent the opening in the tip assembly, a distal end of the insert member defining at least one radially extending slot for facilitating the mixing of first and second components prior to the mixture exiting the opening in the tip assembly.
7. The spray assembly of claim 6, further including a connector extending proximally from and operably connected to the body.

'478 patent – claims 1, 2, 3, and 5-9

8. The spray assembly of claim 6, further including a first source of component and a second source of component.

9. The spray assembly of claim 6, wherein the insert member defines a pair of slots.

'453 patent – claims 1, 2, and 4

1. A spray assembly for dispensing a mixture, the assembly comprising:
 - a connector configured for operable engagement with a first and a second source of component and a source of pressurized fluid;
 - a tip operably connected to the connector, the tip including an opening and defining a mixing chamber between the connector and the opening of the tip;
 - an elongated member extending between the connector and the tip, the elongated member including at least a first lumen configured for fluid communication with the first source of component, a second lumen configured for fluid communication with the second source of component, and a third lumen configured for fluid communication with the source of pressurized fluid; and
 - an insert member configured to be received in the mixing chamber, the insert member including at least one radially extending slot on a first end of the insert and at least a one radially extending slot on a second end of the insert, each of the radially extending slots being configured to mix the first and second source of components prior to the combination exiting the opening in the tip.
2. The spray assembly of claim 1, further including a first and a second source of component.
4. The spray assembly of claim 1, wherein the at least one radially extending slot on the first end of the insert includes a plurality of slots.

'021 patent – claims 14 and 15

14. An applicator assembly for dispensing a mixture, the assembly comprising:

a first portion defining first and second component lumens each having proximal and distal ends, the proximal ends of the first and second component lumens being configured for fluid communication with respective first and second sources of component;

a second portion defining a mixing chamber, the distal end of the first and second component lumens being in fluid communication with the mixing chamber;

a third portion defining an outlet in fluid communication with the mixing chamber; and

an insert disposed within the mixing chamber between the first and second component lumens and the outlet, the insert including a cylindrical member having a recess formed in a first end thereof.

15. The applicator assembly of claim 14, wherein an outer diameter of the insert is uniform along an entire length of the insert.

'483 patent – claims 19 and 21

19. A system for mixing at least a first component and a second component, the system comprising:

at least a first source of component and a second source of component;

a manifold configured for operable engagement with the at least first and second sources of component, the manifold including at least a first component channel and a second component channel therethrough;

an elongated shaft extending distally from the manifold, the elongated shaft including at least a first component lumen and a second component lumen extending the length thereof, the at least first and second component lumens in fluid communication with the at least first and second component channels;

a tip assembly defining a first chamber, an intermediate chamber and a final chamber, wherein the first chamber is configured to receive a distal end of the elongated shaft, the second chamber is configured to receive an insert, and the final chamber is configured to receive the at partially mixed at least first and second components prior to the mixture being ejected from an outlet defined in the distal end of the tip assembly; and,

an insert received in the second chamber, the insert including a substantially cylindrical member having a recess formed in a distal end thereof.

21. The system of claim 19, wherein the recess formed in the distal end of the insert is configured to create turbulence in the flow of the partially mixed at least first and second components prior to the mixture being ejected through the outlet.

'468 patent – claims 1, 2, 4, 5, and 7

1. A spray assembly for dispensing a mixture, the assembly comprising:
 - a connector configured for operable engagement with a first source of component and a second source of component;
 - an elongated member operably connected to and extending distally from the connector, the elongated member including an inner shaft and an outer sleeve, and defining a vent lumen between the inner shaft and outer sleeve, the inner shaft defines at least a first lumen configured for fluid communication with the first source of component and a second lumen configured for fluid communication with the second source of component;
 - a tip operably connected to the connector, the tip including an opening and defining a mixing chamber between a distal end of the elongated member and the opening of the tip; and
 - an insert member configured to be received in the mixing chamber, the insert member defining at least one radially extending slot on a first end of the insert member and at least one radially extending slot on a second end of the insert member, each of the radially extending slots being configured to mix the first and second components prior to the combination exiting the opening in the tip.
2. The spray assembly of claim 1, further including a first and a second source of component.
4. The spray assembly of claim 1, wherein the at least one radially extending slot on the first end of the insert includes a plurality of slots.
5. The spray assembly of claim 1, wherein the at least one radially extending slot on the second end of the insert includes a plurality of slots.
7. The spray assembly of claim 1, wherein the elongated member includes a formable member extending substantially the length thereof to permit forming of the inner shaft.

'946 patent – claims 1-3, 5, and 7

1. A spray assembly for dispensing a mixture, the spray assembly comprising:
 - a connector portion configured for operable engagement with a first source of component, a second source of component, and a source of pressurized air;
 - an elongated portion extending distally from the connector portion, the elongated portion including an inner shaft and an outer sleeve, the inner shaft and the outer sleeve defining a vent lumen therebetween, the inner shaft defining a first lumen configured for fluid communication with the first source of component, a second lumen configured for fluid communication with the second source of component, and a third lumen configured for fluid communication with the source of pressurized air;
 - a tip assembly operably connected to the elongated portion, the tip assembly defining an opening and a mixing chamber between a distal end of the elongated portion and the opening of the tip assembly; and
 - an insert member received in the mixing chamber, a distal end of the insert member defining an annular recess and at least one radially extending slot, the annular recess and the at least one radially extending slot operating to mix first and second components prior to a combination of first and second components exiting the opening in the tip assembly.
2. The spray assembly of claim 1, further including a first source of component and a second source of component.
3. The spray assembly of claim 1, wherein the insert member includes a pair of slots.
5. The spray assembly of claim 1, wherein the outer sleeve is radially spaced from the inner shaft to form the vent lumen.
7. The spray assembly of claim 1, wherein the elongated portion includes a formable member extending substantially a length thereof to permit forming of the inner shaft.

'290 patent – claims 1-3, 5, and 7

1. A spray assembly for dispensing a mixture, the spray assembly comprising:
 - a connector portion configured for operable engagement with a source of first component, a source of second component, and a source of pressurized air;
 - an elongated portion extending distally from the connector portion, the elongated portion including a first lumen configured for fluid communication with the source of first component, a second lumen configured for fluid communication with the source of second component, and a third lumen configured for fluid communication with the source of pressurized air;
 - a tip assembly operably connected to the elongated portion, the tip assembly defining an opening and a mixing chamber between a distal end of the elongated portion and the opening of the tip assembly, wherein the first, second and third lumen are in fluid communication with the mixing chamber; and
 - an insert member received in the mixing chamber, a distal end of the insert member defining at least one radially extending slot configured for mixing the first and second components prior to exiting the opening in the tip assembly.
2. The spray assembly of claim 1, further including a first component and a second component.
3. The spray assembly of claim 1, wherein the at least one radially extending slot includes a pair of slots.
5. The spray assembly of claim 1, wherein the elongated portion includes an inner shaft and an outer sleeve.
7. The spray assembly of claim 1, further including a source of pressurized air connected to the connector portion.

I. INTRODUCTION

HyperBranch’s proposed constructions for the disputed terms are drawn from and are in accord with the claim language, specification, and the prosecution history.¹ In contrast, Plaintiffs attempt to improperly narrow the scope of some claims, strategically and inconsistently narrowing certain claim limitations to certain aspects of the disclosed embodiments, while also attempting to improperly broaden the scope of other claims, seeking to capture claim scope that was clearly and unmistakably surrendered during prosecution. In many instances, Plaintiffs’ proposed constructions are both impermissibly overbroad and overly narrow at the same time. The common thread linking these proposed constructions is Plaintiffs’ litigation-inspired, selective disregard of the claim language and intrinsic record, resulting in constructions that do more to obscure and confuse rather than explain and clarify the meaning of these terms.

In addition, many of the disputed claim terms recite various ambiguous, subjective limitations that render them indefinite under the Supreme Court’s heightened standard for definiteness in *Nautilus*. A main driver behind the heightened standard was the Court’s recognition that “absent a meaningful definiteness check, we are told, patent applicants face powerful incentives to inject ambiguity into their claims.” The present claims do just that. Under *Nautilus*, several claim terms are indefinite for failing to provide clear notice of what is claimed.

II. LEGAL STANDARDS

A. Claim Construction

The principles of claim construction are well established. Claim construction is a matter of law to be determined by the judge. *Markman v. Westview Instruments, Inc.*, 517 U.S. 370,

¹ The asserted patents consist of two patent families. The ’483 and ’021 patents share a common specification and will be referred to as Family 1. The remaining five patents (the ’453, ’468, ’946, ’478, and ’290 patents) share a different common specification and will be referred to as Family 2.

384, 390 (1996). Claim terms are construed by giving words of the claim the meaning they would have to one of ordinary skill in the art in view of the intrinsic record consisting of the claims, specification, and file history. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313–14 (Fed. Cir. 2005). A court, however, “cannot construe the claims to cover subject matter broader than that which the patentee itself regarded as comprising its invention and represented to the PTO.” *Microsoft Corp. v. Multi-Tech Sys., Inc.*, 357 F.3d 1340, 1349 (Fed. Cir. 2004). Following this mandate, “evidence extrinsic to the patent and prosecution history, such as expert testimony, cannot be relied on to change the meaning of the claims when that meaning is made clear” in the intrinsic record. *Southwall Techs., Inc. v. Cardinal IG Co.*, 54 F.3d 1570, 1578 (Fed. Cir. 1995).

B. Indefiniteness

“[I]ndefiniteness is a question of law and in effect part of claim construction.” *ePlus, Inc. v. Lawson Software, Inc.*, 700 F.3d 509, 517 (Fed. Cir. 2012). All claims must satisfy the definiteness standard of 35 U.S.C. § 112. The Supreme Court has made clear that “a patent is invalid for indefiniteness if its claims, read in light of the specification delineating the patent, and the prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention.” *Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120, 2124 (2014). A claim is thus indefinite if one of ordinary skill cannot reasonably determine the scope of the claim. *Id.* at 2129–30. Moreover, “a patent must be precise enough to afford clear notice of what is claimed, thereby ‘appris[ing] the public of what is still open to them.’” *Id.* at 2129 (citing *Markman*, 517 U.S. at 373 (citation omitted)).

III. ARGUMENT

A. “vent lumen”

HyperBranch’s Construction	Plaintiffs’ Construction
“a passageway or cavity within a hollow body	“a passageway for air or fluid extending

HyperBranch's Construction	Plaintiffs' Construction
designed to release or discharge excess gas pressure at a surgical site to the open atmosphere by providing fluid communication between at least two external openings. An 'air lumen' is not a 'vent lumen.'"	along the elongated portion between the inner shaft and outer sleeve"

The asserted claims of the '468 and '946 patents require that the elongated member/portion element include a "vent lumen" formed between the inner shaft and outer sleeve. The parties generally agree that a "lumen" is a passageway within which air or fluids are permitted to flow. Only HyperBranch's proposed construction, however, gives meaning to the modifier "vent," in accord with the ordinary meaning of this term and the intrinsic record.

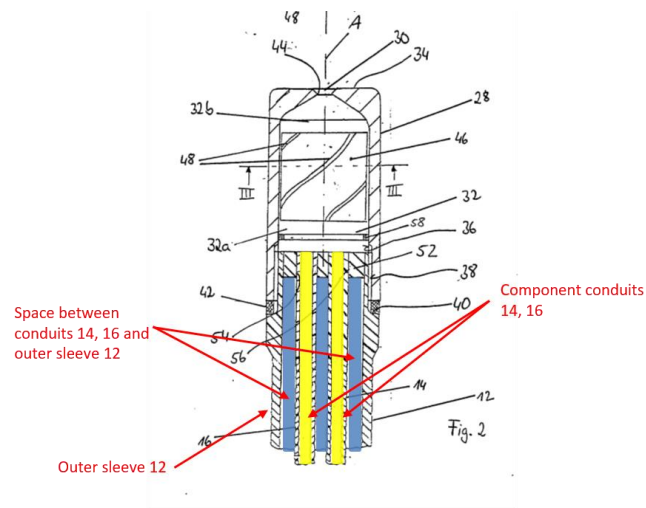
HyperBranch's proposed construction adheres to the claim language by acknowledging that for a lumen to be a "vent lumen," it must facilitate venting by the claimed spray assembly—*i.e.*, facilitate the release of excess gas pressure at a surgical site to the atmosphere. To enable this venting functionality, the vent lumen must connect at least two separated vent openings on the spray assembly, with at least one opening designed to be inserted within the patient when used and at least one opening to remain outside the patient, exposed to the atmosphere. (Hattan Decl. ¶¶22-25.)²

The specification confirms that a vent lumen must link two or more separated vent openings. It discloses an applicator with proximal and distal vent openings on the outer sleeve and provides that "[d]istal vents 52b are in fluid communication with proximal vent 52a via vent lumen 46." *See* '453 patent at 3:42-44, Figs. 3, 4, 6. Indeed, it is this connection between two or more separated vent openings that makes a lumen a vent lumen. Based on this disclosure, a person of ordinary skill would recognize that in use, pressurized gas in the patient's body cavity

² The "Hattan Decl." refers to the declaration of Paul Hattan that accompanies HyperBranch's opening claim construction brief. References to exhibits (*i.e.*, "Ex. __") in this brief are to the numbered exhibits attached to the Hattan declaration.

would flow through the vent openings on the distal end of the applicator, through the vent lumen, and be released to the atmosphere through the proximal vent opening. (Hattan Decl. ¶¶26-28.) A vent lumen thus acts to transport pressurized gas from the distal end of the claimed apparatus towards the proximal end. (*Id.*) An “air lumen,” on the other hand, acts to transport pressurized gas in the opposite direction, from a source of pressurized gas at the proximal end of the applicator to the tip opening into the body cavity of a patient. ’453 patent at 5:10-14 (describing the flow of gas through “air lumen 47”). Consequently, a “vent lumen” is not an “air lumen.” (Hattan Decl. ¶28.)

The file history of the ’468 patent provides further confirmation that a vent lumen connects two or more openings in the applicator to thereby facilitate venting. During prosecution, following a rejection based, in part, on a prior art German Patent to Maslanka, Applicants amended their claims to recite, *inter alia*, the vent lumen limitation. Ex. 4 (July 23, 2013 Amendments and Remarks) at 2. Maslanka disclosed a dual component applicator that included a pair of conduits surrounded by an outer sleeve. *See* Ex. 5 (Maslanka) at 7-8, Fig. 2.



Id. at Fig. 2 (annotated). Applicants expressly distinguished Maslanka from the newly-amended claims, unequivocally stating that Maslanka did not disclose a vent lumen. *See* Ex. 4 (July 23,

2013 Amendments and Remarks) at 9 (“despite the Examiner’s assertion, the space between conduits 16 and the outer sleeve 12 does not define a vent lumen as claimed.”); Ex. 6 (Feb. 8, 2013 Office Action) at 7; (Hattan Decl. ¶¶29-32).

As shown in annotated Figure 2 above, while Maslanka disclosed a lumen—*i.e.*, a passageway or cavity formed between the inner pair of conduits and the outer sleeve in which air or other fluids would be permitted to flow—Maslanka did not disclose any vent openings in the outer sleeve that were connected to this passageway. (*See* Hattan Decl. ¶33.) Under HyperBranch’s proposed construction, in accord with amended claim language and the applicants’ prosecution statements, the lumen formed between the inner conduits and outer sheath in Maslanka would not be a vent lumen. Under Plaintiffs’ proposed construction, however, this lumen in Maslanka would be deemed a “vent lumen.” Plaintiffs’ proposed construction directly conflicts with its own arguments made during prosecution distinguishing Maslanka from the claimed invention and therefore cannot be correct. *See Southwall Techs.*, 54 F.3d at 1578 (A patentee may not proffer an interpretation for the purposes of litigation that would alter the indisputable public record consisting of the claims, the specification and the prosecution history, and treat the claims as a “nose of wax.”).

Indeed, under Plaintiffs’ proposed construction, any generic lumen through which air or fluid could flow would fall within their construction of a “vent lumen.”³ Plaintiffs’ proposed construction of “vent lumen” effectively reads the “vent” modifier out of the claim term. (Hattan Decl. ¶34.) Plaintiffs’ proposed construction is thus overbroad and incorrect, as it renders the

³ Plaintiffs attempt to disguise the fact that their construction of “vent lumen” covers all lumens, regardless of whether they connect any vent openings or facilitate any venting functionality, by improperly importing into their construction redundant structural limitations (*i.e.*, that the lumen is formed between the inner shaft and outer sleeve) that are expressly provided elsewhere in the asserted claims that require a “vent lumen.”

“vent” modifier impermissibly superfluous. *See Bicon, Inc. v. Straumann Co.*, 441 F.3d 945, 950 (Fed. Cir. 2006) (all claim language should be given effect when interpreting a claim term); *Gen. Am. Transp. Corp. v. Cryo-Trans, Inc.*, 93 F.3d 766, 770 (Fed. Cir. 1996) (rejecting the district court’s claim construction because it rendered superfluous the claim requirement for openings adjacent to the end walls).

B. “inner shaft defines/defining . . .” phrases

“the inner shaft defines at least a first lumen configured for fluid communication with the first source of component and a second lumen configured for fluid communication with the second source of component”

HyperBranch’s Construction	Plaintiffs’ Construction
“a single long, narrow body that defines at least two distinct passageways or cavities that are designed to be in fluid communication with a first and second source of component, respectively. A pair of conduits is not an inner shaft defining a first lumen and a second lumen.”	“structure containing lumens within an outer surface of the elongated body wherein one lumen is designed to permit flow of a first component from one portion of the spray assembly to another portion of the spray assembly and a second lumen is designed to permit flow of a second component from one portion of the spray assembly to another portion of the spray assembly”

“the inner shaft defining a first lumen configured for fluid communication with the first source of component, a second lumen configured for fluid communication with the second source of component, and a third lumen configured for fluid communication with the source of pressurized air”

HyperBranch’s Construction	Plaintiffs’ Construction
“a single long, narrow body that defines at least three separate passageways or cavities that are designed to be in fluid communication with a first and second source of component and a source of pressurized air, respectively. A pair of conduits is not an inner shaft defining a first lumen, a second lumen, and a third lumen.”	“structure containing lumens within an outer surface of the elongated body wherein one lumen is designed to permit flow of a first component from a first source of component to another portion of the spray assembly and a second lumen is designed to permit flow of a second component from a second source of component to another portion of the spray assembly and a third lumen is designed to permit flow of air from a source of pressurized air to another portion of the spray assembly”

HyperBranch’s proposed constructions of the “inner shaft defines/defining . . .” phrases

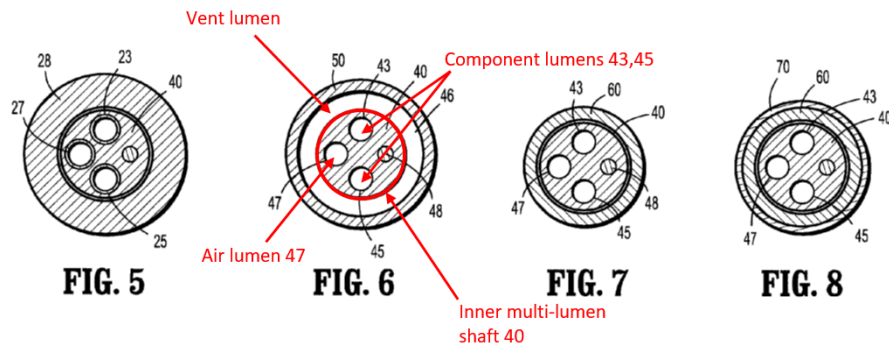
are in accord with how these phrases are understood in the art, used in the claims, and the intrinsic record. First, the ordinary meaning of the term “shaft” is a long, narrow body, and the modifier “inner” necessitates that this long, narrow body be contained within some other distinct structure.⁴ (Hattan Decl. ¶36.) Next, the claim language expressly provides that it is the inner shaft—not some other structural element or combination of elements—that *defines* “at least” two lumens configured for fluid communication with the first and second source of components in the ’468 patent and three lumens configured for fluid communication of the first and second sources of components and a source of pressurized air, respectively, in the ’946 patent. *See* ’468 patent at cl. 1; ’946 patent at cl. 1.

This interpretation that the “inner shaft” alone must define these structures is supported by the surrounding claim language that recites an additional lumen—a vent lumen—that is not solely defined by the inner shaft. These claims provide that the vent lumen is defined by the space between the inner shaft *and the outer sleeve. Id.* In other words, when describing lumens that are defined *only in part* by the inner shaft, the claims also recite additional structure (*i.e.*, the outer sleeve) that serves to complete the definition of that particular passageway. Given this difference in how a vent lumen is defined versus how the two or three other lumens for components and pressurized air are defined in the claims, the latter set of components/air lumens must be defined solely by and contained within a singular, multi-lumen inner shaft. (Hattan Decl. ¶37.)

This conclusion, and HyperBranch’s proposed construction, is further supported by the specification. The only embodiment of the inner shaft disclosed in the specification is the “inner multi-lumen shaft 40 of the elongated body portion 30.” ’453 patent at 3:29-30. As shown in

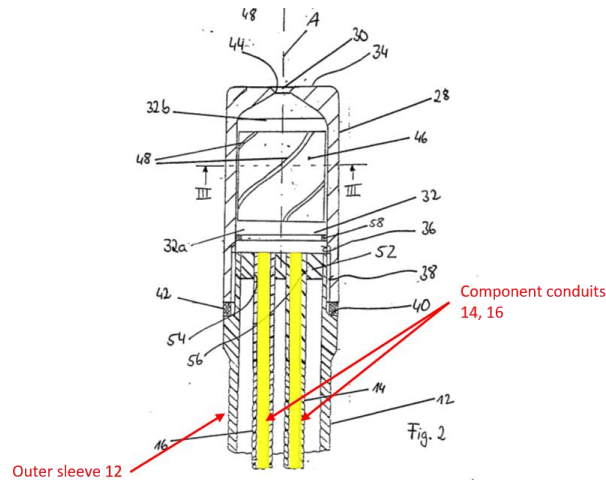
⁴ See also the discussion of the “inner shaft” term, construed by itself, in Section III.K., below.

cross section in Figure 6, “inner multi-lumen shaft 40” is the only shaft contained within the outer sleeve. *Id.* at Fig. 6.



Id. at Figs. 5-8 (annotated). This inner multi-lumen shaft (element 40) defines and completely encloses several lumens, including separate lumens for the first and second components and for pressurized air, respectively. *Id.* (depicting component lumens 43 and 45 and air lumen 47 within inner shaft 40); *see also id.* at 3:31-39, 3:45-49, 4:66-5:16, Figs. 5, 7-8; (Hattan Decl. ¶38.)

The file history of the ‘468 patent also further supports HyperBranch’s proposed construction. Again, following a rejection based in part on the Maslanka reference, Applicants amended their claims to also require that the “inner shaft define[] at least” a first and second component lumen. Ex. 4 (July 23, 2013 Amendments and Remarks) at 2. Applicants then distinguished the Maslanka reference from the newly-amended claims, stating: “[f]urther, *the applicator of Maslanka does not disclose an inner shaft defining [a] first and second lumen. Instead, as noted above, the applicator of Maslanka includes a pair of conduits.*” *Id.* at 9 (emphasis added). Indeed, as shown in annotated Figure 2 below, Maslanka discloses an applicator with a pair of separate component conduits, not a single multi-lumen inner shaft as disclosed in the Family 2 specification.



Ex. 5 (Maslanka) at Fig. 2 (annotated). Through these clear statements during prosecution, the Applicants put the public on notice that the applicators with two separate component conduits—as opposed to a single, multi-lumen shaft—fell outside of the scope of this claim language. *See N. Am. Container, Inc. v. Plastipak Packaging, Inc.*, 415 F.3d 1335, 1345 (Fed. Cir. 2005) (inescapable consequence of applicant argument that prior art reference was distinguishable because it disclosed inner walls that were “slightly concave” was that the scope of applicant’s claims cannot cover inner walls that are “slightly concave.”); (Hattan Decl. ¶¶39-41).

Plaintiffs’ proposed constructions for these phrases are vague and impermissibly overbroad. Plaintiffs attempt to blur the distinction between the “inner shaft” and “outer sleeve” of the elongated body, and their proposed construction shifts the structure that defines the recited lumens from the inner shaft, as claimed, to the outer sleeve or simply the “outer surface of the elongated body.”⁵ Plaintiffs’ attempt to re-write their claims through claim construction—effectively substituting “outer sleeve” for “inner shaft” in these phrases—should be rejected. (Hattan Decl. ¶¶42-43.)

In addition to this fundamental defect, to the extent that a pair of separate conduits within

⁵ See also the discussion of the “outer sleeve” term, construed alone, below in Section III.L.

an inner sleeve fell within the scope of this claim term (which it does not for the reasons provided above), Plaintiffs also impermissibly attempt to recapture this claim scope that was clearly surrendered by the claim amendment during prosecution to distinguish the prior art. In particular, the pair of component conduits (14, 16) within the outer sleeve (12) in the applicator of Maslanka would be “structure containing lumens within an outer surface of the elongated body wherein” a first and second lumen are configured to permit flow of a first and second component, respectively, and thus would fall under Plaintiffs’ proposed construction. *See* Ex. 4 (July 23, 2013 Amendments and Remarks) at 9; Ex. 5 (Maslanka) at 7-8, Figs. 1-2; (Hattan Decl. ¶43). However, having unambiguously stated that “Maslanka does not disclose an inner shaft defining [a] first and second lumen,” Plaintiffs cannot now advocate for a claim construction for these “inner shaft defining/defines . . .” phrases that would encompass the pair of conduits configuration of the Maslanka applicator. *See N. Am. Container*, 415 F.3d at 1345; *MBO Labs., Inc. v. Becton, Dickinson & Co.*, 474 F.3d 1323, 1330 (Fed. Cir. 2007) (“Prosecution arguments . . . which draw distinctions between the patented invention and the prior art are useful for determining whether the patentee intended to surrender territory, since they indicate in the inventor’s own words what the invention is not.”).

C. “radially extending slot(s)” / “slot(s)”

HyperBranch’s Construction	Plaintiffs’ Construction
“a notch made into the end of the insert with a length dimension that extends, at least in part, between the center and periphery of the end and is designed to enable fluid to flow primarily in a direction perpendicular to the longitudinal axis. A longitudinal channel or groove on the side of the insert is not a ‘radially extending slot.’”	“slot(s) angling outward where one of the sides of the slot extends along a line tangent to the annular recess”

All of the asserted claims in the Family 2 patents require that the claimed insert have at

least one “radially extending slot” on one or both ends of the insert. HyperBranch’s construction gives meaning to the claim language, as supported by the full disclosure in the specification. In contrast, Plaintiffs’ construction simply picks out an isolated phrase from the specification that, when stripped from its context, serves to confuse rather than clarify the meaning of this term.

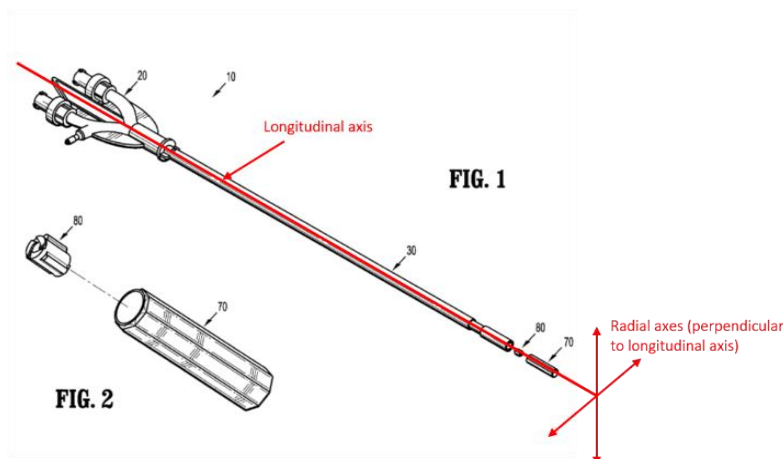
As an initial matter, all the asserted Family 2 claims require that the slots be “on” the ends of the insert. HyperBranch’s construction is consistent with this requirement, stating that the slot/notch must be made into the end of the insert, as opposed to the side of the insert. (Hattan Decl. ¶45.) The parties generally agree that the slots marked as elements 82a and 82b in Figures 13B and 13C of the Family 2 specification are “radially extending slots” (*see* ‘453 patent at 4:32-51, 6:1-11, Figs. 13B-13C, 16), but disagree as to whether slots with other quite different orientations, such as slots that extend longitudinally along the side of the insert, are “radially extending slots.” Construction is needed to clarify the orientation required by the modifier “radially extending.” (Hattan Decl. ¶46.)

HyperBranch’s construction is consistent with the ordinary meaning of “radially” and “extending” and with how these terms are used in the patents. First, the ordinary meaning of “extend” commonly refers to the dimension of length. (*Id.*, ¶47.) Consistent with this ordinary meaning, the patents routinely use “extend” in conjunction with a reference to length and never do so in conjunction with any other dimension, such as width, depth, etc. *See* ‘453 patent at 3:62-63 (“Transition member 60 *extends* from outer sleeve 50 about inner shaft 40 and may be of any *length*.” (emphasis added)); ‘483 patent at 1:48-50 (first and second lumens “extending the length” of the elongated shaft).

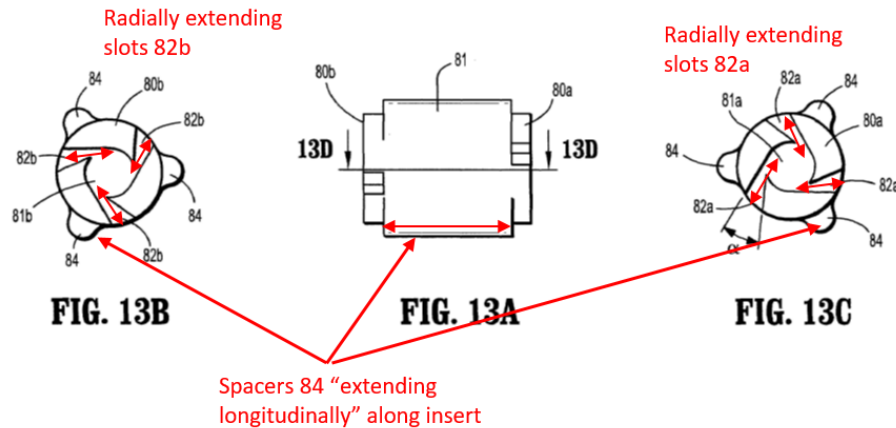
Next, the ordinary meaning of “radially” is “radiating from or converging to a common center.” (Hattan Decl. ¶48.) A slot on an insert is a three-dimensional structure, and as such, *any*

slot on or intersecting with an end of the insert will have a dimension that extends, at least in part, between the center and the periphery of the insert. For example, a simple square channel running down the side of a cylindrical insert would have a depth dimension that extends between the center and periphery of the end of the insert where the channel intersects the ends of the insert. (*Id.*, ¶¶49-50.) But, if *any* dimension of a slot on or intersecting with the end of the insert were permitted to satisfy this limitation, the claim would in effect just recite “a slot.” Accordingly, the term must be limited to the length dimension of the slot to avoid rendering the “radially extending” portion of the term meaningless. *Gen. Am. Transp.*, 93 F.3d at 770 (rejecting the district court’s claim construction because it rendered superfluous the claim requirement for openings adjacent to the end walls).

Further, the asserted patents employ a common frame of reference when describing the orientation of certain structural features or how elements are oriented with respect to other elements. (*See* Hattan Decl. ¶¶51-53.) The patents use the term “longitudinal” or “longitudinally” to describe the dimension that extends between the proximal and distal ends of the applicator. *See, e.g.*, ’453 patent at 4:51-52, 5:34-39, Figs. 13A, 14. The patents use the term “radial” or “radially” to describe the dimensions that are perpendicular to this longitudinal axis. *See, e.g., id.* at 4:49-51, 4:59-61, 6:1-4, Figs. 9, 13B-13C, 16. These axes are illustrated below.



Id. at Figs. 1-2 (annotated); (Hattan Decl. ¶51). In fact, on the insert itself, the “radially extending slots” on the ends of the insert are distinguished from the spacers “extending longitudinally” along the sides of the insert body. ’453 patent at 4:32-55, Figs. 13A-13D.



Id. at Figs. 13A-13C (annotated); (Hattan Decl. ¶52). Moreover, the patents clearly teach that fluids are designed to flow through the radially extending slots to promote the mixing of the components. *See, e.g.*, ’453 patent at 5:15-28, cl. 1. Thus, to further clarify the meaning of the claim and remove any ambiguity regarding when a slot has a length dimension that extends, at least in part, between the center and periphery of the end, HyperBranch’s construction, consistent with the intrinsic record, provides that the slots be oriented “to enable fluid to flow primarily in a direction perpendicular to the longitudinal axis.” (Hattan Decl. ¶¶51-53.)

Finally, to remove any doubt and crystalize the primary dispute between the parties over this term, HyperBranch’s construction also clarifies that a longitudinal channel or groove on the side of the insert is not a “radially extending slot.” This portion of the construction is supported by the claim language requiring the slot to be “on” the end of the insert, the distinction between the longitudinal and radial dimensions as discussed above, and by the file history of the ’468 patent. *See* Ex. 6 (February 8, 2013 Office Action) at 7 (conclusion of the Examiner that longitudinally extending grooves on Maslanka insert did not create “radially extending slots”

where these grooves intersected the ends of the insert); Ex. 7 (May 6, 2013 Remarks) at 7 (Applicants repeat and do not challenge the Examiner’s conclusion); (Hattan Decl. ¶54). Indeed, the Family 2 specification itself distinguishes between the “radially extending slots” on the ends of the insert, and the longitudinally extending “space” created between the spacers (elements 84) and the mixing chamber and insert body (*see* ’453 patent at 5:15-23, Fig. 9), further demonstrating that the longitudinally extending spaces or slots are not “radially extending slots” where these features intersect with the end of the insert. (Hattan Decl. ¶55.)

Plaintiffs’ proposed construction, in contrast, is both overbroad and overly narrow and only serves to confuse the meaning of the term. First, Plaintiffs attempt to improperly narrow this claim term by defining it in terms of another separate structural element, an annular recess, that is not recited in or required by most of the asserted claims.⁶ Moreover, there is nothing in the specification that suggests, let alone clearly and unmistakably demonstrates, that Plaintiffs intended to limit the meaning of this term to the embodiment disclosed in the specification, which includes both radially extending slots and an annular recess. *See* ’453 patent at 4:32-55, Figs. 13A-13D. Plaintiffs are guilty of improperly importing a limitation from the specification that is contrary to the plain and ordinary meaning of this claim term, resulting in an improper, overly narrow construction. *See Trading Techs. Int’l, Inc. v. eSpeed, Inc.*, 595 F.3d 1340, 1352 (Fed. Cir. 2010) (courts must not import limitations into the claims from the specification absent

⁶ While all of the asserted claims from the Family 2 patents require that the claimed insert include one or more “radially extending slot(s),” only the asserted claims from the ’946 patent and certain asserted claims from the ’478 patent also require an “annular recess” on the end of the insert. Under principles of claim differentiation, it would be improper to import this additional limitation into the claims that do not recite an “annular recess” requirement. *See Andersen Corp. v. Fiber Composites, LLC*, 474 F.3d 1361, 1369 (Fed. Cir. 2007) (doctrine of claim differentiation is based on the “common sense notion that different words or phrases used in separate claims are presumed to indicate that the claims have different meanings and scope” and that the difference between the claims is significant) (citations omitted).

a clear intention by the patentee to limit claim scope through manifest expressions of exclusion or restriction) (citations omitted). For example, a slot on the end of a cylindrical insert (that does not contain an annular recess) that literally extends directly along a radius from the center to the outer circumference of the insert would not be considered a “radially extending slot” under Plaintiffs’ construction. (Hattan Decl. ¶56.)

At the same time, Plaintiffs’ construction is also overbroad. Plaintiffs selected an isolated fragment of the specification stripped of its relevant context to create a strategically ambiguous, litigation-inspired construction. For example, their construction fails to provide or clarify from where the slots are angling outward or what it means to have a (potentially round) wall of a slot extend along a line tangent to an “annular recess,” which is itself a term subject to dispute. Further, Plaintiffs’ construction describes how one wall of the slot is formed but fails to include how or where the opposite wall of the slot should be formed, as is provided in the Family 2 specification. (*Id.*, ¶¶57-59.)

Moreover, the portion of the specification from which Plaintiffs based their construction (*see* ’453 patent at 4:32-55), describes slots on the ends of the insert depicted in Figures 13A-13D. In these Figures, the tangent line forming one of the sides of the radially extending slots 82a and 82b is co-planar with the circular cross section of the annular recess. *See id.* at Figs. 13B-13C; (Hattan Decl. ¶59). But, Plaintiffs have taken the position that their construction is not limited to co-planar lines tangent to the annular recess, presumably because they seek a construction of “radially extending slots” that would encompass longitudinally extending slots along the sides of the insert, contrary to the plain and ordinary meaning of this term. Plaintiffs’ strategic, inconsistent selection of which limitations from the specification to include and which limitations to exclude from their construction should be rejected.

D. “elongated” body phrases**“elongated”**

HyperBranch’s Construction	Plaintiffs’ Construction
“longer in the longitudinal dimension than in the dimensions perpendicular to the longitudinal axis”	“extended”

“elongated shaft”

HyperBranch’s Construction	Plaintiffs’ Construction
“a long, narrow body that is longer in the longitudinal dimension than in the dimensions perpendicular to the longitudinal axis”	“structure containing lumens extending distally to the applicator tip”

“elongated member”

HyperBranch’s Construction	Plaintiffs’ Construction
“a part of an applicator that is longer in the longitudinal dimension than in the dimensions perpendicular to the longitudinal axis”	“structure of the spray applicator extending between the connector and applicator tip”

“elongated portion”

HyperBranch’s Construction	Plaintiffs’ Construction
This term is indefinite. If it is not indefinite, the term should be given the following construction: “a part of an applicator that is longer in the longitudinal dimension than in the dimensions perpendicular to the longitudinal axis”	“structure of the spray applicator extending between the connector and the applicator tip”

The ’483, ’453, ’468, ’946 and ’478 patents require that the applicator include an “elongated” body, appearing in the claims as an “elongated shaft,” “elongated member,” or “elongated portion.” While the parties disagree over the proper constructions of the terms used to describe the body⁷ that is elongated, the parties’ primary dispute regarding these terms is over the

⁷ HyperBranch’s proposed constructions of “shaft,” “member,” and “portion” are consistent with the plain and ordinary meaning of these terms, supported by the intrinsic record, and are more descriptive and helpful than Plaintiffs’ proposed choice of generic “structure.” (*See* Hattan Decl.

meaning of “elongated.” HyperBranch’s proposed constructions give meaning to “elongated” in accordance with its plain meaning and the intrinsic evidence, while Plaintiffs’ proposed constructions render this term essentially meaningless.

The ordinary meaning of “elongated” is “having more length than width.” (*See* Hattan Decl. ¶63.) It is a relative term that is used to compare one dimension to another. As discussed above, the patents describe structural features or the relative positioning of elements using a frame of reference that employs only two dimensions—the longitudinal dimension that extends between the proximal end and the distal tip of the applicator assembly, and the radial dimension that encompasses the dimensions perpendicular to this longitudinal axis. *See* ’453 patent at 4:32-61, 5:34-39, 6:1-4, Figs. 9, 13A-13D, 14, 16; ’483 patent at 1:65-2:2, 5:4-10, 5:40-50, Figs. 6, 9-11; (Hattan Decl. ¶¶51-52, 63-64). None of the patents describes elements in terms of their height or width. HyperBranch’s construction simply echoes the terminology used in the Family 2 specification to describe in the dimension that is elongated, relative to its other dimensions. Further, the elongated body elements (element 30) disclosed in the patents clearly are longer in the longitudinal dimension than in the dimensions perpendicular to the longitudinal axis. *See* ’453 patent at 2:62-3:4, Figs. 1-4; ’483 patent at 2:66-3:7, Figs. 1-3; (Hattan Decl. ¶64).

In contrast, Plaintiffs’ proposed construction of these terms would improperly render the term “elongated” meaningless. First, Plaintiffs’ construction of the term “elongated” alone is “extended,” which is broader than the plain meaning of “elongated” and not particularly helpful in clarifying the meaning of the term. *Cf. C.R. Bard, Inc. v. U.S. Surgical Corp.*, 388 F.3d 858, 863 (Fed. Cir. 2004) (endorsing position that “merely rephrasing or paraphrasing the plain language of a claim by substituting synonyms does not represent genuine claim construction.”).

¶61.) In addition, as discussed in more detail in the section below, the “elongated portion” term is indefinite.

Specifically, it does not explain which dimension of the claimed body is elongated (or extended) compared to its other remaining dimensions. (*See* Hattan Decl. ¶65.)

Critically, however, Plaintiffs’ constructions of the combined “elongated shaft,” “elongated member,” or “elongated portion” terms drop the modifier “extended” and instead describe the elongated body element simply as “structure . . . *extending*” from, to, or between other elements (*i.e.*, the connector or tip) of the spray assembly. Under Plaintiffs’ proposed constructions of these terms, a *non-elongated* structure, such as a perfect cube or a cylinder with a length less than or equal to its diameter, could extend from, to, or between the other components recited in Plaintiffs’ constructions and thereby satisfy these constructions. (Hattan Decl. ¶66.) Thus, in addition to creating an indefiniteness issue by defining one applicator element by its placement with respect to other elements (which will be discussed in the following section), Plaintiffs improperly render the “elongated” modifier superfluous. *See Gen. Am. Transp.*, 93 F.3d at 770 (rejecting the district court’s claim construction because it rendered superfluous the claim requirement for openings adjacent to the end walls).

E. Phrases directed to the relationship and connection between the connector/manifold element and the (elongated) body element

(“elongated portion extending distally from the connector portion” / “an elongated member operably connected to and extending distally from the connector” / “an elongated shaft extending distally from the manifold” / “a connector extending proximally from and operably connected to the body” / “elongated member extending between the connector and the tip”)⁸

These phrases reciting how the elongated⁹ body element is positioned with respect to the

⁸ The parties’ proposed constructions for these phrases are provided in Appendix A.

⁹ Claim 7 of the ’478 patent simply recites a “body” and does not require that this body be elongated. With the exception of those directed towards this “elongated” modifier, the arguments in this section are still applicable to the phrase used to describe the relationship between and positioning of the connector element and the body element used in this claim—*i.e.*, “a connector extending proximally from and operably connected to the body.”

connector/manifold element are indefinite because, when read in light of the specification delineating the patents, they fail to afford clear notice of what structures would fall within the scope of the claims and what would not. Instead, these phrases—and Plaintiffs’ proposed constructions for them—simply lead, in many circumstances, to subjective and arbitrary line-drawing exercises regarding where one element ends and another begins. (Hattan Decl. ¶¶67-69.)

The Family 1 specification discloses a manifold (element 20) that “includes a substantially Y-shaped member having a first and a second proximal extension 22, 24 and a distal extension 26.” ’483 patent at 3:8-10, Figs. 1-2. It also discloses an elongated shaft (element 30) that extends distally from the manifold and further teaches that the “elongated shaft 30 may be integrally formed at a distal end of manifold 20.” *Id.* at 3:1-4, 3:36-38, Figs. 1-2. Similarly, the Family 2 specification discloses a Y-connector (element 20) with “first and second proximal extensions, 22, 24 . . . and a collar 28” and an elongated body portion (element 30) that extends distally from the Y-connector from collar 28. ’453 patent at 2:65-67, 3:5-8, 3:24-30, Figs. 1, 3-4. It likewise further teaches that the collar of the Y-connector can be “molded directly around the proximal end of elongated body portion 30” or that the elongated body portion can be affixed to the collar “using adhesive, sonic welding or other suitable method.” *Id.* at 3:49-56.

When the connector/manifold and the elongated body elements are separate, distinct structures, these phrases are not indefinite. An indefiniteness issue arises, however, when an applicator has a unitary Y-shaped body element that allows the sources of components (and source of pressurized air when applicable) to be attached at its proximal ends and a tip to be attached at its distal end. (Hattan Decl. ¶¶70-71.) The patents provide no principled way to conclude whether such an applicator includes both a connector and an elongated body (in which case it would satisfy these claim limitations) or includes just a connector and fails to include an

elongated body (in which case it would fall outside these claim limitations). (*Id.*, ¶71.)

Moreover, even if such a structure were assumed, *arguendo*, to include both a connector portion and a body portion extending from the connector portion, the patents fail to provide an objective means of determining whether that body portion is “elongated.” In other words, the patents provide no objective guidance to determine where, for such an applicator, the connector portion ends and the elongated body portion begins. (*Id.*, ¶72.) The patents describe the connector/manifold as being Y-shaped, having a distal extension or collar, as shown for example in the following image with respect to connector/manifold 120:

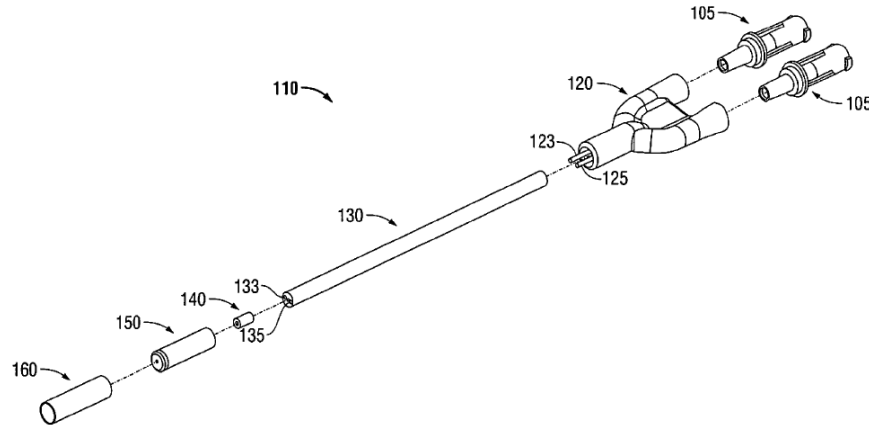


FIG. 7

'483 Patent, Fig. 7, 5:23-29 (connector/manifold 120 is distinct from elongated shaft 130). They do not set any upper or lower bounds on the length of this distal extension, meaning that any attempt to do so for a unitary Y-shaped body would be an exercise in arbitrary line drawing. (Hattan Decl. ¶72.) Accordingly, these terms are indefinite because they fail to reasonably inform one of skill of the proper scope of the claims. *See Nautilus*, 134 S.Ct. at 2124.

If the Court deems these phrases susceptible to construction, however, the indefiniteness must be removed from any adopted construction. Accordingly, if not found indefinite, these phrases should be construed in accordance with HyperBranch's proposed constructions, which

supply an objective definition by requiring that the claimed “body,” “elongated shaft,” “elongated member,” or “elongated portion” element be structurally distinct from the claimed “connector,” “manifold,” and/or “tip” elements to which they are joined. (Hattan Decl. ¶73.)

F. “a source of pressurized air” / “a source of pressurized fluid”

HyperBranch’s Construction	Plaintiffs’ Construction
“a container that supplies air/fluid that has been brought to and maintained at an elevated pressure above ambient pressure”	“structure which provides pressurized air/fluid”

HyperBranch’s proposed construction is consistent with and clarifies the plain and ordinary meaning of these phrases.¹⁰ The ordinary meaning of “pressurized” is “brought to and maintained at an atmospheric pressure higher than that of the surroundings.” *See* (Hattan Decl. ¶75); Ex. 8; *see also* Ex. 2 at 1434 (defining “pressurize” as “to put (gas or liquid) under a greater than normal pressure”). The claims use the past tense—“pressurized”—to describe the air/fluid in the “source,” so the “source of pressurized air/fluid” must be able to contain and maintain this previously pressurized air/fluid, in accord with HyperBranch’s proposed construction. (*See* Hattan Decl. ¶75.) Plaintiffs’ proposed construction, on the other hand, simply substitutes the generic phrase “structure which provides” for the claim term “source.” This generic non-construction is not helpful and fails to clarify the scope of this claim term. *See B. Braun Melsungen AG v. Becton, Dickinson & Co.*, No. 1:16-cv-411-RGA, 2017 WL 3396464, at *11-12 (D. Del. Aug. 7, 2017) (rejecting Plaintiffs’ proposed construction that merely rephrased the claim language as adding nothing helpful to understanding the meaning of the claim). Plaintiffs fail to provide any explanation for what “pressurized” means. (*See* Hattan Decl. ¶76.)

¹⁰ The Family 2 specification offers little, if any, guidance for construing these phrases, as it only repeats the claim terminology and describes the air supply port on the applicator for connecting to the source of pressurized air. *See* ’453 patent at Abstract, 1:42-53, 3:5-10, 4:66-5:10, 6:24-26, Figs. 1, 3-4; (Hattan Decl. ¶74).

G. “cylindrical” phrases**“cylindrical”**

HyperBranch’s Construction	Plaintiffs’ Construction
“having a shape consisting of parallel lateral sides and a circular or oval cross section”	“having straight walls and circular or oval ends”

“the insert including a cylindrical member” / “cylindrical member”

HyperBranch’s Construction	Plaintiffs’ Construction
“the insert includes a structure having a shape consisting of parallel lateral sides and a circular or oval cross section”	“component having straight walls and circular or oval ends”

These claim phrases come from the ’021 patent and are used to describe the shape of the claimed insert. The parties generally agree that a “cylindrical” object or “cylindrical member” has a circular or oval cross section and ends. The parties’ dispute is over whether the lateral walls need only be straight, as Plaintiffs’ propose, or (straight and) parallel, as HyperBranch proposes.

The plain and ordinary meaning of “cylindrical” is “[o]f, relating to, or having the shape of a cylinder, especially of a circular cylinder.” Ex. 2 at 465. A “cylinder” is a geometric figure defined as “the surface generated by a *straight line intersecting and moving along* a closed plane curve, the directrix, while *remaining parallel* to a fixed straight line that is not on or parallel to the plane of the directrix” or “a solid bounded by two parallel planes and such a surface, especially such a surface having a circle as its directrix.” *Id.* (emphasis added); (Hattan Decl. ¶79). The insert disclosed in the specification comports with this definition and HyperBranch’s construction, depicting a perfectly cylindrical insert (element 40) with a circular cross section and straight, *parallel* sides. *See* ’483 patent at 2:5-7, 4:17-20, Figs. 1, 3-4; (Hattan Decl. ¶80).

In contrast, by failing to require that the sides of the cylindrical object be parallel, Plaintiffs’ proposed construction is impermissibly overbroad, encompassing objects that are

clearly outside of the plain and ordinary meaning of “cylindrical.” In particular, funnel-like, conical shapes where the tip of the conical structure has been removed to form a circular end that is narrower than the opposite end would have straight (non-parallel) sides and fall under Plaintiffs’ construction. Conical bodies are not equivalent to cylindrical bodies, and Plaintiffs’ overbroad construction should thus be rejected.¹¹ (Hattan Decl. ¶¶81-82.)

H. “an outer diameter of the insert is uniform along an entire length of the insert” / “outer diameter of the insert is uniform”

HyperBranch’s Construction	Plaintiffs’ Construction
<p>This term is indefinite. If it is not indefinite, the term should be given the following construction:</p> <p>“the outer diameter of the insert does not change along the entire longitudinal length of the insert”</p>	<p>“the outer surface of the insert has the same shape along its length”</p>

This claim term from claim 15 of the ’021 patent is indefinite. It is not clear from the claim language what “an” outer diameter of the insert or “an entire length” of the insert means. What is the distinction between “a length” and “an entire length” of the insert? (*See* Hattan Decl. ¶84.) The specification provides no clarification, as it simply discloses a perfectly cylindrical insert that has a single, uniform outer diameter along the entire length of the insert. *See* ’483

¹¹ To the extent that Plaintiffs argue that some deviation from requiring perfectly parallel walls should be allowed, such an argument should be rejected. First, these claims in the ’021 patent recite a “cylindrical” body, not a “substantially cylindrical” body, as recited in the ’483 patent claims. Principles of claim differentiation prohibit Plaintiffs from arbitrarily modifying the claim language of the ’021 patent to match the different terminology used in the ’483 patent. *See Andersen Corp.*, 474 F.3d at 1369 (doctrine of claim differentiation is based on the “common sense notion that different words or phrases used in separate claims are presumed to indicate that the claims have different meanings and scope” and that the difference between the claims is significant) (citations omitted). Moreover, even if such a modification were allowed, it would render the claims indefinite, as discussed in Section III.I. Finally, Plaintiffs have not provided and cannot provide a principled reason for why the claims should be permitted some undefined amount of deviation from perfectly parallel sides but still require, as in Plaintiffs’ construction, that the walls be straight. (*See* Hattan Decl. ¶82.)

patent at 2:5-7, 4:17-20, Figs. 1, 3-4; (Hattan Decl. ¶85).

If the Court deems that this term is susceptible to construction, however, it should remove the ambiguity created by the indefinite articles (“an”) used in the claim term and replace them with definite articles (“the”) as HyperBranch has proposed, in accordance with what is disclosed in the specification. (Hattan Decl. ¶86.) The Court should also reject Plaintiffs’ proposed construction, which serves to render the “outer diameter” term meaningless and leads to absurd results. A funnel-like, conical insert with differently-sized circular ends would satisfy Plaintiffs’ proposed construction, as the outer-surface of the object would have the same cross-sectional shape (a circle) along its entire length. (*Id.*, ¶87.) But, the outer diameter of these circular cross-sections would be continuously changing and thus never uniform. Plaintiffs’ construction encompasses objects that directly contradict the ordinary meaning of this claim term (to the extent that it has a non-indefinite one) and should be rejected. (*Id.*)

I. “insert including a substantially cylindrical member” / “substantially cylindrical member”

HyperBranch’s Construction	Plaintiffs’ Construction
<p>This term is indefinite. If it is not indefinite, the term should be given the following construction:</p> <p>“an insert with a portion that has a shape consisting of parallel lateral sides and, at least in part or in portions, a circular or oval cross section”</p>	<p>“component in tip assembly having predominantly straight walls and predominantly circular or oval ends”</p>

The asserted claims from the ’483 patent require that the insert include “a substantially cylindrical member.” Whether a portion of an insert is “substantially” cylindrical is a subjective question of degree and is therefore indefinite. *See generally*, Robert A. Matthews, Jr., Annotated Patent Digest § 23:16 (2017) (“Claim constructions that depend solely on the subjective views of an expert or user generally result in an indefinite claim.”). One person of ordinary skill could

subjectively conclude that a particular insert had a “substantially cylindrical member” while another could conclude that it was not substantially cylindrical. (Hattan Decl. ¶88.); *see Sonix Tech. Co. v. Publ’ns Int’l, Ltd.*, 844 F.3d 1370, 1377-78 (Fed. Cir. 2017) (noting that terms of degree are indefinite when there is insufficient guidance from the intrinsic record to avoid purely subjective assessments).

The written description provides insufficient, if any, guidance to resolve this indefiniteness issue and fails to disclose an objective standard that provides reasonable certainty about the scope of the invention. *See Nautilus*, 134 S. Ct. at 2124; *Interval Lic. LLC v. AOL, Inc.* 766 F.3d 1364, 1371 (Fed. Cir. 2014) (“Where, as here, we are faced with a ‘purely subjective’ claim phrase, we must look to the written description for guidance.”). The Family 1 specification uses the term “substantially cylindrical” to describe a number of elements and structures, most of which, including the disclosed insert, are perfectly cylindrical. *See, e.g.*, ’483 patent at 2:5-7, 3:41-45, 4:4-20, 5:30-33 Figs. 1, 3-5, 7. The specification describes “final chamber” (element 58) as a “substantially cylindrical cavity” that is depicted as being perfectly cylindrical in Figure 4 and that has a separately labeled “tapered distal portion” (element 58a). It is not clear whether the “substantially cylindrical” descriptor was meant to apply just to the portion of the cavity marked as element 58 or to its tapered distal portion (58a) as well, but, regardless, this disclosure is insufficient to provide an objective means of determining how much deviation from a perfect cylinder is permitted before a structure ceases to be “substantially cylindrical.” (Hattan Decl. ¶¶89-91.) How much of a “substantially cylindrical” structure is permitted to be non-cylindrical in shape? How much deviation from a circular or oval cross section is permitted before a structure is not “substantially cylindrical?” How much deviation from having straight and parallel walls is permitted before the structure is not “substantially cylindrical?” The

specification fails to provide an objective standard for answering these questions, and this claim term is indefinite as a result. (*Id.*, ¶¶91.) Moreover, Plaintiffs’ proposed construction does nothing to resolve this indefiniteness problem, as there is no guidance provided in the specification that would allow one to objectively assess when the walls were or were not “predominantly straight” or did or did not have “predominantly” circular or oval ends. (*Id.*, ¶¶92-93.)

If the Court deems this term susceptible to construction, it should adopt HyperBranch’s proposed construction, which imposes objective, definite boundaries on the scope of the claim.

J. “annular recess”

HyperBranch’s Construction	Plaintiffs’ Construction
“a recess with a circular or ring-shaped cross section”	“a substantially circular indentation”

The parties’ dispute over this term centers on what it means for a recess or indentation to be “annular.” HyperBranch’s construction comports with ordinary meaning of this term and is supported by the intrinsic record. “Annular” ordinarily means “ring shaped,” but in the Family 2 patents, this term is also used in describing objects or structures that have a circular cross section, including the annular recesses (elements 81a, 81b) on the insert depicted in Figures 13B and 13C. *See* ‘453 patent at 4:35-37, Figs. 13B-13C; *see also id.* at 4:17-19, 4:24-29, 4:32-34, 4:51-52, 5:28-33, Figs. 10-14. HyperBranch’s construction accurately reflects and clarifies how this term is used in the patents. (Hattan Decl. ¶¶95-97.)

In contrast, Plaintiffs’ construction injects litigation-inspired ambiguity into this claim term through the use of the phrase “substantially circular.” The written description provides no objective standard to judge when a recess or indentation is “substantially circular” or not, so making a determination of whether an accused insert or a prior art insert has an “annular recess” would in many cases devolve into a purely subjective exercise. (*Id.*, ¶98.) This, of course,

appears to be precisely Plaintiffs’ objective. Plaintiffs’ indefinite construction, offered not in an attempt to clarify the meaning of the term but to create ambiguity for Plaintiffs to later exploit, should be rejected.

K. “inner shaft”

HyperBranch’s Construction	Plaintiffs’ Construction
“a long, narrow body contained within another distinct structure”	“structure containing lumens within the outer sleeve”

The primary dispute between the parties’ regarding this claim term is over the meaning of “shaft.” HyperBranch’s proposal—“a long, narrow body”—is in accord with the ordinary meaning of this term (*see* Hattan Decl. ¶¶99-100) and supported by the written description. *See* ’453 patent at 3:24-35, 3:45-49, 4:17-19, 4:66-5:16, Figs. 1, 3-8. The inner shaft (element 40) is depicted as a long narrow body within another distinct structure (the outer sleeve). *See id.* at Figs 3-8; (Hattan Decl. ¶101).

In contrast, Plaintiffs’ definition of “shaft” is both overly narrow and overbroad. It is overly narrow because a shaft can be a solid structure that need not necessarily contain lumens, so Plaintiffs’ construction does not comport with the ordinary meaning of this term. (Hattan Decl. ¶102.) As discussed above, other express language in the claims reciting an “inner shaft” provides which lumens need to be defined in whole or in part by the inner shaft, and adding “containing lumens” to the definition of “inner shaft” alone is unnecessary, redundant, and creates the potential for confusion. (*Id.*) Plaintiffs’ construction is also overbroad, in that it defines a shaft as any structure containing lumens, which could encompass objects like spheres, cubes, thin disks, tetrahedra, etc. (that contain lumens) that would fall outside the ordinary meaning of “shaft.” (*Id.*, ¶103.) Plaintiffs’ definition, using “structure,” is so broad that it

effectively renders the term “shaft” meaningless and superfluous, and thus should be rejected.

See Bicon, 441 F.3d at 950.

L. “outer sleeve”

HyperBranch’s Construction	Plaintiffs’ Construction
No construction necessary. If construction is necessary: “the outermost tube or tube-like part fitting over or around the inner shaft”	“an outer surface of the elongated body portion surrounding the inner shaft”

Because the term “outer sleeve” is a straightforward, non-technical term that requires no construction for a lay fact finder to understand, no construction of this term is necessary. (Hattan Decl. ¶105.) Should the Court deem construction necessary, however, it should adopt HyperBranch’s proposed construction, which is in accord with the ordinary meaning of this term and is supported by the intrinsic record. The ordinary meaning of “sleeve” is a tube or tube-like part that fits over or around another distinct structure. (*Id.*, ¶106.) Further, the “outer” sleeve should be the outermost tube or tube-like part that surrounds other distinct internal elements. (*Id.*, ¶107.) HyperBranch’s proposed construction further is in accord with the disclosure of the “outer sleeve” provided in the written description. *See* ’453 patent at 3:31-44, Figs. 1, 3-4, 6 (depicting the outer sleeve 50 as a separate, distinct structure from inner shaft 40).

Plaintiffs’ construction, in contrast, attempts to blur the distinction between the outer sleeve and inner shaft by failing to require that the outer sleeve have any separate, distinct structure from the elongated body and/or inner shaft.¹² Plaintiffs use the term outer “*surface*” of the elongated body to define the outer sleeve. Of course, *any* elongated body will have an “outer surface,” regardless of whether it has an outer sleeve. (Hattan Decl. ¶¶104, 108-09.) Under Plaintiffs’ construction, for example, a single, unitary, solid shaft (that could contain one or more

¹² As discussed above for the “inner shaft defines/defining . . .” phrases, the reason Plaintiffs attempt to blur this distinction is to improperly switch the structure defining the recited lumens from the inner shaft to the outer sleeve.

lumens running through its length) would be an elongated body with *both* an inner shaft and outer sleeve. The “outer sleeve” would be the outer surface of this solid elongated body, and the “inner shaft” would be all the structure contained within the outer surface of this solid elongated body. Such an absurd result, contrary to the plain and ordinary meaning of these claim terms (a single, solid body cannot be both an outer sleeve and an inner shaft), establishes that Plaintiffs’ construction cannot be correct, and thus, it should be rejected. (*Id.*, ¶¶109-11.)

M. Phrases from the claim preambles

“dispensing a mixture”

HyperBranch’s Construction	Plaintiffs’ Construction
This claim preamble is not limiting, and, if deemed limiting, requires no further construction.	“providing a combination of at least two components in addition to any pressurized air or pressurized fluid”

“a system for mixing at least a first component and a second component”

HyperBranch’s Construction	Plaintiffs’ Construction
This claim preamble is not limiting, and, if deemed limiting, requires no further construction.	“a system for combining at least two reactive components”

These two claim phrases are found in the preambles of the asserted claims.¹³ Because none of these preambles is limiting, these phrases are not limitations that require construction. A preamble limits the invention only if it recites essential structure or steps or is “necessary to give life, meaning, and vitality” to the claim. *Catalina Mktg. Int’l, Inc. v. Coolsavings.com, Inc.*, 289 F.3d 801, 808 (Fed. Cir. 2002). A preamble may be limiting when: (i) terms in the body rely on a preamble phrase for antecedent basis, (ii) it recites additional structure or steps underscored as important by the specification, or (iii) it is clearly relied upon during prosecution to distinguish

¹³ The “system for mixing . . .” phrase is recited in the preamble to the ‘483 patent claims, while the “dispensing a mixture” phrase is recited in the preambles of the asserted claims for the remaining asserted patents.

the prior art. *See id.* at 808-09. None of these circumstances is present here. These preamble phrases do not provide an antecedent basis for any terms later occurring in the body of the claims, they do not recite any additional structure that is not recited in the claims, and they were not used during prosecution to distinguish any prior art from the claimed invention.¹⁴ *See, e.g.*, '483 patent at cl. 19; '453 patent at cl. 1; (Hattan Decl. ¶113). A preamble is generally not limiting when the claim body describes a structurally complete invention such that the deletion of the preamble would not affect the structure of the claimed invention or when the preamble simply describes the use of an invention. *See Catalina Mktg.*, 289 F.3d at 809. Here, the asserted claim bodies describe structurally complete inventions, and the claim preambles—“[a] spray assembly for dispensing a mixture . . .” and “a system for mixing at least a first component and second component”—simply describe the use or purpose of the claimed invention. *See, e.g.*, '483 patent at cl. 19; '453 patent at cl. 1; (Hattan Decl. ¶113).

Even if these preamble phrases are deemed limiting, however, the Court still does not need to construe them because their plain and ordinary meaning is clear and requires no additional explanation. (Hattan Decl. ¶114.) Further, the Court should reject Plaintiffs' proposed constructions of these phrases because nothing in the intrinsic record requirement clearly and unambiguously states that the first and second components must be “reactive,” and Plaintiffs' construction for “dispensing a mixture” creates ambiguity as to whether and when pressurized air/fluid is included in the “combination.” (*Id.*, ¶¶115-16.)

IV. CONCLUSION

Based on the foregoing, the Court should adopt HyperBranch's proposed constructions.

¹⁴ In their identification of intrinsic evidence, Plaintiffs identified no instances in which the inventors sought to distinguish any prior art from the claimed invention on the basis of these preambles, and HyperBranch likewise was unable to identify any such instances.

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Appendix A**E(1). “elongated portion extending distally from the connector portion”**

HyperBranch’s Construction	Plaintiffs’ Construction
<p>This term is indefinite. If it is not indefinite, the term should be given the following construction:</p> <p>“a part of an applicator distinct from the connector that is longer in the longitudinal dimension than in the dimensions perpendicular to the longitudinal axis and extends distally away from the connector along its longitudinal axis”</p>	<p>“structure of the spray applicator extending from the connector in a direction away from the source of component”</p>

E(2). “an elongated member operably connected to and extending distally from the connector”

HyperBranch’s Construction	Plaintiffs’ Construction
<p>This term is indefinite. If it is not indefinite, the term should be given the following construction:</p> <p>“a part of an applicator distinct from the connector that is longer in the longitudinal dimension than in the dimensions perpendicular to the longitudinal axis and extends distally away from the connector along its longitudinal axis”</p>	<p>“structure of the spray applicator extending between the connector and the applicator tip that extends from the connector in a direction away from the source of component and joined with and capable of operating with the connector”</p>

E(3). “an elongated shaft extending distally from the manifold”

HyperBranch’s Construction	Plaintiffs’ Construction
<p>This term is indefinite. If it is not indefinite, the term should be given the following construction:</p> <p>“a long, narrow body that is distinct from the manifold that is longer in the longitudinal dimension than in the dimensions perpendicular to the longitudinal axis and extends distally away from the manifold along its longitudinal axis”</p>	<p>“structure containing lumens extending distally to the applicator tip from the manifold”</p>

E(4). “a connector extending proximally from and operably connected to the body”

HyperBranch’s Construction	Plaintiffs’ Construction
<p>This term is indefinite. If it is not indefinite, the term should be given the following construction:</p> <p>“a connector joined to the proximal end a distinct body so the joined elements are capable of operation”</p>	<p>“structure of the applicator extending toward a source of component and joined with and capable of operating with the structure of the spray applicator defining a lumen”</p>

E(5). “elongated member extending between the connector and the tip”

HyperBranch’s Construction	Plaintiffs’ Construction
<p>This term is indefinite. If it is not indefinite, the term should be given the following construction:</p> <p>“a part of an applicator distinct from the connector and the tip that extends between the connector and the tip and is longer in the longitudinal dimension than in the dimensions perpendicular to the longitudinal axis”</p>	<p>“structure of the spray applicator between the connector and applicator tip”</p>